

REMARKS

Claims 145-180 are in the case and presented for reconsideration.

The numbering of the claims has been objected to under 37 C.F.R. § 1.126. Accordingly, original Claims 1-36 provided in the Applicant's Preliminary Amendment for the Present Application have been changed to new Claims 145-180 respectively.

The priority of the present application has been objected to under 37 C.F.R. § 1.76. Accordingly, the Applicant has amended the Specification as outlined above in order to include all of the relevant priority application data. The Applicant would like to point out that the Preliminary Amendment for the present application amending the Specification at Page 1, Line 2 had indicated that the present application is a continuation of U.S. Patent Application No. 09/111,317 (the prior application, now issued U.S. Patent No. 6,285,898), and is believed to be in compliance with 37 C.F.R. § 1.78 (a). Please see the first paragraph of the prior case (U.S. Patent Application Serial No. 09/111,317, filed on July 7, 1998, now issued U.S. Patent No. 6,285,898) outlining the relevant priority data.

With respect to the claim of priority to PCT/IL97/00010 under 35 U.S.C. § 365, please note that all requirements outlined in MPEP § 1895 subsections (A) – (D) have been satisfied. Particularly, the Present Application is entitled to obtain the benefit of 35 U.S.C. § 120 of PCT/IL97/00010, filed on January 8, 1997. In particular, (A) reference is made in the first sentence of the Specification; (B) an indication has been made that the PCT International Application has been published in English (as amended above); (C) that U.S. Patent Application No. 09/111,317, filed on July 7, 1998 was copending with the prior PCT International Application No. PCT/IL97/00010 filed on January 8, 1997; and (D) there is at least one inventor in common with the prior PCT International Application (Shlomo Ben-Haim).

Accordingly, all necessary requirements with respect to the priority information for the present application have been satisfied.

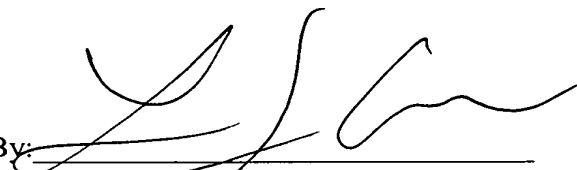
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Claims 1-36 have been rejected under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent 6,216,027 (Willis et al.). The Applicant would like to point out that support for Applicant's original Claims 1-36 (Amended as new Claims 145-180 above) for the Present Application is contained in at least Application No. PCT/IL97/00010, filed on January 8, 1997 and U.S. Patent Application No. 08/595,365, filed on February 1, 1996, now issued U.S. Patent No. 5,738,096. Accordingly, the Willis et al. reference (U.S. 6,216,027) is antedated by the Present Application, and the rejection should be withdrawn.

Accordingly, by this Amendment and for the reasons outlined above, the prior objections and rejection have been either satisfied and/or overcome and favorable action is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is/are captioned "Version with markings to show changes made".

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

This patent application is a continuation of U.S. Patent Application No. 09/111,317, filed on July 7, 1998, now issued U.S. Patent No. 6,285,898, which is a continuation of Application No. PCT/IL97/00010, filed on January 8, 1997 (published in English), now abandoned, which is a Continuation-in-Part of U.S. Patent Application No. 08/595,365, filed on February 1, 1996, now issued U.S. Patent No. 5,738,096, which claims the benefit of Ser. No. 60/009,769, filed on Jan. 11, 1990, which is a § 371 filing of PCT/US95/01103, filed on Jan. 24, 1995; which is a CIP of U.S. Application No. 08/293,859, filed on Aug. 19, 1994, now abandoned, and a CIP of U.S. Application No. 08/311,593, filed on Sep. 23, 1994, now issued U.S. Patent No. 5,546,951; which is a Division of U.S. Application No. 08/094,539, filed on Jul. 20, 1993 now issued U.S. Patent No. 5,391,199.

In the Claims:

Please renumber Claims 1-36 to new Claims 145-180 as follows:

[1]145. A method for mapping a heart comprising the steps of:
inserting a mapping catheter having an ultrasonic position sensor into the
heart;
inserting at least one reference catheter having an ultrasonic position
sensor into the heart;
determining the position of the mapping catheter relative to the at least
one reference catheter; and
mapping a portion of the heart with the mapping catheter.

[2]146. The method according to Claim 145, further comprising determining the position of the tip of the mapping catheter relative to the at least one reference catheter.

[3]147. The method according to Claim 146, further comprising creating a geometric map of the portion of the heart with the mapping catheter based on the position of the tip of the mapping catheter.

[4]148. The method according to Claim 147, further comprising mapping electrical activity of the portion of the heart with at least one electrode mounted at the tip of the mapping catheter.

[5]149. The method according to Claim 148, further comprising reconstructing a surface of the heart based on the position of the tip of the mapping catheter.

[6]150. The method according to Claim 147, further comprising performing a therapeutic procedure on the portion of the heart.

[7]151. The method according to Claim 150, further comprising performing an ablation procedure on the portion of the heart.

[8]152. The method according to Claim 147, further comprising measuring impedance of the portion of the heart.

[9]153. The method according to Claim 147, further comprising measuring mechanical information of the portion of the heart.

[10]154. The method according to Claim 153, further comprising measuring movement of the portion of the heart.

[11]155. A method for mapping a heart comprising the steps of:
inserting a mapping catheter having an ultrasonic position sensor into the heart;
inserting at least one reference catheter having an ultrasonic position sensor outside of the heart;

determining the position of the mapping catheter relative to the at least one reference catheter; and

mapping a portion of the heart with the mapping catheter.

[12]156. The method according to Claim 155, further comprising determining the position of the tip of the mapping catheter relative to the at least one reference catheter.

[13]157. The method according to Claim 156, further comprising creating a geometric map of the portion of the heart with the mapping catheter based on the position of tip of the mapping catheter.

[14]158. The method according to Claim 157, further comprising mapping electrical activity of the portion of the heart with at least one electrode mounted at the tip of the mapping catheter.

[15]159. The method according to Claim 158, further comprising reconstructing a surface of the heart based on the position of the tip of the mapping catheter.

[16]160. The method according to Claim 157, further comprising performing a therapeutic procedure on the portion of the heart.

[17]161. The method according to Claim 160, further comprising performing an ablation procedure on the portion of the heart.

[18]162. The method according to Claim 157, further comprising measuring impedance of the portion of the heart.

[19]163. The method according to Claim 157, further comprising measuring mechanical information of the portion of the heart.

[20]164. The method according to Claim 163, further comprising measuring movement of the portion of the heart.

[21]165. A method for mapping a heart comprising the steps of:

- (a) inserting a mapping catheter having an ultrasonic position sensor into the heart;
- (b) inserting at least one reference catheter having an ultrasonic position sensor into the heart;
- (c) bringing the tip of the mapping catheter into contact with a wall of the heart at a location;
- (d) determining a position of the tip of the mapping catheter at the location;
- (e) adding the position to a map;
- (f) moving the tip of the mapping catheter to a second location; and
- (g) repeating steps (d) - (f).

[22]169. The method according to Claim 165, further comprising reconstructing a surface of the heart based on the determined positions.

[23]170. The method according to Claim 165, further comprising mapping electrical activity of the surface of the heart with at least one electrode mounted at the tip of the mapping catheter.

[24]171. The method according to Claim 165, further comprising performing a therapeutic procedure on the surface of the heart.

[25]172. The method according to Claim 168, further comprising performing an ablation procedure on the surface of the heart.

[26]173. The method according to Claim 166, further comprising measuring impedance of the surface of the heart.

[27]174. The method according to Claim 166, further comprising measuring mechanical information of the surface of the heart.

[28]175. The method according to Claim 171, further comprising measuring movement of the surface of the heart.

[29]176. A method for mapping a heart comprising the steps of:

- (a) inserting a mapping catheter having an ultrasonic position sensor into the heart;
- (b) inserting at least one reference catheter having an ultrasonic position sensor outside of the heart;
- (c) bringing the tip of the mapping catheter into contact with a wall of the heart at a location;
- (d) determining a position of the tip of the mapping catheter at the location;
- (e) adding the position to a map;
- (f) moving the tip of the mapping catheter to a second location; and
- (g) repeating steps (d) - (f).

[30]177. The method according to Claim 173, further comprising reconstructing a surface of the heart based on the determined positions.

[31]178. The method according to Claim 174, further comprising mapping electrical activity of the surface of the heart with at least one electrode mounted at the tip of the mapping catheter.

[32]179. The method according to Claim 174, further comprising performing a therapeutic procedure on the surface of the heart.

[33]177. The method according to Claim 176, further comprising performing an ablation procedure on the surface of the heart.

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[34]178. The method according to Claim 174, further comprising measuring impedance of the surface of the heart.

[35]179. The method according to Claim 174, further comprising measuring mechanical information of the surface of the heart.

[36]180. The method according to Claim 179, further comprising measuring movement of the surface of the heart.